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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/964,237	09/26/2001	Cary Lee Bates	ROC920010221US1	1864

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EXAMINER

PHAM, CHRYSTINE

ART UNIT	PAPER NUMBER
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2122

DATE MAILED: 11/19/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/964,237	Applicant(s) BATES ET AL.	
	Examiner Chrystine Pham	Art Unit 2122	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _____ MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 26 September 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-25 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 September 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date: _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date: _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-11, 13, 14, 16-18, 20 are rejected under 35 U.S.C. 102(b) as being anticipated by Philips et al. (US 5321828), hereinafter, *Philips et al.*.

Claim 1

Philips et al. teach a system (e.g., see FIG.2 & associated text), a method of debugging an application in a debugging environment comprising the application (e.g., see program col.26:39-41) and a debugger program contained in a computer readable medium or memory (e.g., see source level debugger 22 FIG.2 & associated text, col.26:39-41), when executed by a computer configured with an application being debugged during a debug session, performs breakpoint counter operations, the method (i.e., debug program) comprising:

- o counting instructions (i.e., processor) for automatically counting a number of times (i.e., associating a breakpoint-specific counter with) each breakpoint in the application is encountered while the application is executing during a test run (e.g., see "ignore <count>", ignore<bnum><count> col.28:50-col.29:8);
and
- o storing instructions (i.e., processor) for storing the number (i.e., counter value) for each breakpoint in a memory space for use in a subsequent run (i.e., execution of application)(e.g., see <count> col.29:4-15).

Claim 2

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The rejection of base claim 1 is incorporated. *Philips et al.* further teach *while the application is stopped, receiving a user-input request to uninterruptedly execute (by execution instructions) the application until a user-specified breakpoint (e.g., col.28:44-45) is encountered some number of times (i.e., breakpoint-specific counter value has reached or is equal to a user-specified value), $N-X$ (or Y), where N is a stored number of times the user-specified breakpoint was encountered during the test run and X is a value equal to or greater than zero (e.g., see condition<bnun><expression>, "ignore <count>" col.28:44-67).*

Claim 3

The rejection of base claim 1 is incorporated. *Philips et al.* further teach *after the application is stopped or halted at a location in response to a last breakpoint encounter of a particular breakpoint encountered Y number of times at the last breakpoint encounter (i.e., breakpoint-specific counter value is determined to have reached or be equal to a user-specified value) (see command col.28:50-col.29:18, col.29:26-30), receiving a user-input request to uninterruptedly execute the application until the application is again stopped at the location in response to encountering the particular breakpoint Y number of times (see claim 2).*

Claim 4

The rejection of base claim 1 is incorporated. *Philips et al.* further teach *wherein automatically counting comprises, for each breakpoint: incrementing a breakpoint-specific counter (e.g., see <count> col.29:4-15) each time a breakpoint associated with the breakpoint-specific counter is encountered in a particular code segment (e.g., see line number, function name, exact address, program col.26:39-44); and resetting the breakpoint-specific counter each time the code segment is entered (i.e., firing an internal breakpoint which does not call a user interface) (e.g., see SET INTERNAL, RESET col.50:19-43).*

Claim 5

Claim recites a computer readable medium containing a debug program performing the method addressed in claim 1, therefore, is rejected for the same reasons as cited in claim 1.

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Claims 6-11, 13

Claims recite limitations, which have been addressed in claims 1-4, therefore, are rejected for the same reasons as cited in claims 1-4.

Claim 14

Claim recites a computer readable medium containing a debug program performing the method addressed in claim 4, therefore, is rejected for the same reasons as cited in claim 4.

Claims 16-18, 20

Claims recite limitations, which have been addressed in claims 1-3, 11, therefore, are rejected for the same reasons as cited in claims 1-3, 11.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over *Philips et al.* further in view of Ishida (US 5367550), hereinafter, *Ishida*.

Claim 15

The rejection of base claim 14 is incorporated. *Philips et al.* do not expressly disclose wherein the code segment is one of a routine and a loop. However, *Ishida* teaches a method of debugging a program (e.g., see Abstract) wherein a breakpoint-specific counter is associated with the breakpoint in a code segment of the program and the code segment of the program is one of a routine and a loop (e.g., see stop count CVstop REGISTER 1b, COUNTER 3b FIG.2 & associated text, see loop instruction col.4:23-40). *Philips et al.*

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and *Ishida* are analogous art because they are both directed to debugging software applications. It would have been obvious to one of ordinary skill in the pertinent art at the time the invention was made to incorporate the teaching of *Ishida* into that of *Philips et al.* for the inclusion of a loop in the program's routine. And the motivation for doing so would have been to facilitate the halting of the program's execution only after a certain instruction (i.e., inside a loop) has been executed a desired number of times, thereby, making the debugging process more efficient.

5. Claims 12, 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Philips et al.* further in view of *Peri et al.* (US 6182208), hereinafter, *Peri et al.*.

Claim 12

The rejection of base claim 9 is incorporated. . *Philips et al.* further teach

- o determining whether a counter value of the counter has reached a user-specified value and (see claim 3)
- o if so, halting execution of the application (see claim 3).

Philips et al. do not expressly disclose issuing a user notification indicative of the counter value. However, *Peri et al.* teach a method of debugging an application, halting execution of the application upon encountering a breakpoint and issuing a user notification indicative of the counter value (e.g., see message and routines col.5:19-32). *Philips et al.* and *Peri et al.* are analogous art because they are both directed to debugging software applications. It would have been obvious to one of ordinary skill in the pertinent art at the time the invention was made to incorporate the teaching of *Peri et al.* into that of *Philips et al.* for the inclusion of user notification. And the motivation for doing so would have been to allow the user to examine or analyze the state of the program as part of the debugging process prior to encountering the breakpoint.

Claim 19

The rejection of base claim 14 is incorporated. Claim recites limitations, which have been addressed in claim 12, therefore, is rejected for the same reasons as cited in claim 12.

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6. Claims 21-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over *Philips et al.* in view of Beckett (US4080650), hereinafter, *Beckett*.

Claim 21

Philips et al. teach a computer system, comprising:

- o a memory containing content comprising at least a debug program to implement a debug session, an application for debugging (see claim 1); and a
- o processor which, when executing at least a portion of the content during the debug session, is configured to:
 - o associate a breakpoint-specific counter with a breakpoint and with at least one application code segment in which the breakpoint is located (see claim 4);
 - o increment the counter each time the breakpoint is encountered (see claim 4); and
 - o reset the counter each time the application code segment is entered (see claim 4).

Philips et al. do not expressly disclose a breakpoint table configurable with breakpoint-specific counters. However, *Beckett* teaches a method of debugging an application wherein a breakpoint table is configurable with breakpoint-specific information (e.g., see breakpoint table col.1:50-60). *Philips et al.* and *Beckett* are analogous art because they are both directed to debugging software applications. It would have been obvious to one of ordinary skill in the pertinent art at the time the invention was made to incorporate the teaching of *Beckett* into that of *Philips et al.* for the inclusion of a breakpoint table storing breakpoint-specific counters disclosed by *Philips et al.*. And the motivation for doing so would have been to facilitate the reading of a first word of a breakpoint-related instruction directly from the breakpoint table, which is then executed as if it has been obtained from its original memory location in the program. This further enables additional words of the instruction to be obtained directly from their normal memory locations in the program thus eliminating the need to provide a reference table in memory for instruction lengths.

Claims 22-24

The rejection of base claim 21 is incorporated. Claims recite limitations which have been addressed in claims 1, 3, 11; therefore, are rejected for the same reasons as cited in claims 1, 3, 11.

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7. Claim 25 is rejected under 35 U.S.C. 103(a) as being unpatentable over *Philips et al.* in view of *Beckett* further in view of *Peri et al.*.

Claim 25

The rejection of base claim 22 is incorporated. Claim recites limitations, which have been addressed in claim 12, therefore, is rejected for the same reasons as cited in claim 12.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:
- o Apparatus and method for implementing watchpoints and breakpoints in a data processing system, Pardo et al. (US 5754839)
 - o Universal multi-bus breakpoint unit for a configurable system-on-chip, Murray et al. (US 6751751)
 - o System and method for acquiring high granularity performance data in a computer system, Heisch (US 5774724)
9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chrystine Pham whose telephone number is 571.212.3702. The examiner can normally be reached on Mon-Fri, 8:30am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tuan Q Dam can be reached on 571.272.3695. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Chrystine Pham
Examiner
GAU 2122



TUAN DAM
SUPERVISORY PATENT EXAMINER